

REMARKS

Claims 1-9 remain pending in the application. Claims 1 and 6 have been amended to overcome the rejections under section 112.

Rejection Under 35 U.S.C. § 112, First Paragraph

Claims 1-9 stand rejected as allegedly failing to comply with the written disclosure requirement for containing the phrase “up to about 10°C above the dew point of water.” The Office Action argues that “by definition, the term ‘dew point’ refers to a gas and not a condensable [sic] component such as water.”

The *McGraw-Hill Dictionary of Scientific and Technical Terms* (6th ed. 2003) defines “dew point” as the temperature and pressure at which a gas begins to condense to a liquid. Thus, a dew point is in reference to a condensable component. The condensable material in this case is water present in the air in its gaseous state. Applicants submit the claim is supported by the original specification. Paragraph 17 discloses that the present invention concerns transferring water from a fuel cell effluent, where it is present in vapor form, to supply other components. Paragraphs 20, 21, 22, 24, 27, and many other paragraphs also describe transferring water from one gaseous stream to another. Paragraphs 53 and 54 state that the present invention concerns “water vapor” that is transferred from a “wet” gas stream to a dry gas stream. In paragraph 58, the specification states that the temperature of the “wet” gas stream is preferably maintained at a temperature above the dew point of the gas so that water does not condense in the water transfer device. Applicants submit that this can only

reasonably be interpreted to refer to the water dew point, the temperature at which the water will condense from the gas stream to a liquid state.

Further, "dew point" is commonly used (and understood by even non-scientists) to refer to the dew point of water in air. In the present case, it hardly seemed necessary to specify that Applicants meant the dew point of dihydrogen oxide, not oxygen, nitrogen, or other chemical components present in the effluent stream which can potentially be liquefied because such was already clear in the context of the claim and Applicants' invention.

Applicants remind the examiner that support need not be present in *ipsis verbis*. While (in retrospect) the description may have been more elegantly stated, one skilled in the art could not fail but understand the dew point, to which Applicants referred and above which one must stay to avoid condensation of water in the water transfer device, to be the dew point at which water condenses from the gas stream.

In an effort to further prosecution, Applicants have amended the language to "dew point for condensation of water."

The Office Action alleges an enablement issue based on the erroneous definition provided therein, discussed above.

Applicants respectfully request withdrawal of the rejections and reconsideration of the claims.

Rejection Under 35 U.S.C. § 112, Second Paragraph

Claims 1-9 stand rejected as allegedly indefinite for lack of antecedent basis for "said device supply stream output." This error has been corrected in the amended

claims. Further, "conduit" has been pluralized, and reference to position of the plenum has been moved near the mention of the conduits ends.

Applicants request withdrawal of this rejection in view of the amended claims. Reconsideration of the claims is respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Voss in View of Lovelock

Claims 1-3 and 5 stand rejected as unpatentable over Voss et al, US Patent 6,106,964 in view of Lovelock, US Patent 5,160,511. Applicants respectfully traverse the rejection and request reconsideration of the claims.

The Voss patent describes a combined heat and humidity exchange apparatus having a chamber for flow of exhaust gas 430 divided by a membrane 410 from a single chamber, adjacent the fuel cell, for flow of reactant gas 420. It is important for the Voss CHHE is to heat the reactant gas 420. Thus, the Voss device needs the exhaust gas 430 to be at the stack operating temperature and needs the reactant gas chamber to be adjacent the fuel cell. Column 10, lines 16-27. The exhaust reactant air is preferably directed through the CHHE module "from a region of the chamber located closer to a warmer portion of the stack 300, to a region located closer to a cooler portion of the stack 300." Column 10, lines 50-54. In contrast to the present invention, the Voss CHHE module does not maintain the temperature of the cathode effluent at greater than and up to about 10°C above dew point.

The Lovelock reference is cited for additionally teaching a water vapor transfer module with plenums leading to conduits through which wet gas flows and around which dry gas flows. The Lovelock patent does not, however, teach or suggest any device in

which temperature at the device input is sufficient to maintain water in a vapor state and is greater than and up to about 10 °C above the dew point for condensation of water.

The Office Action admits that the Voss patent does not teach this, and does not assert that the Lovelock patent teaches it. Rather, the Office Action opines that the Lovelock device may be operated at a temperature of up to 100°C to dry steam saturated gases, thus one would be led to operate at a temperature sufficient to maintain water in its vapor state.

That condition, however, it not the same as the condition in Applicants' invention. In Applicants' invention, the temperature of the cathode effluent at greater than and up to about 10°C above dew point. A temperature of 100°C is far, far out of this range. Thus, according to the logic proposed in the Office Action, one would be led away from limiting the temperature for the cathode effluent at the device input.

For these reasons, Applicants submit that prima facie obviousness has not been shown. Accordingly, Applicants request withdrawal of the rejection and request reconsideration of the claims.

Rejection Under 35 U.S.C. § 103(a) over Voss in View of Lovelock and Bloomfield

Claim 4 stands rejected as unpatentable over Voss et al, US Patent 6,106,964 in view of Lovelock, US Patent 5,160,511 as applied to claims 1-3 and 5, and further in view of Bloomfield, US Patent 3,976,507 for its teaching of a fuel cell system comprising an autothermal reformer. Applicants respectfully traverse the rejection and request reconsideration of the claims.

While the Bloomfield patent includes an autothermal reformer, its disclosure does not augment the first two references with regard to temperature of cathode effluent at a water transfer device. Thus, Applicants submit that claim 4 is patentable over the combination of references by virtue of the distinction discussed above with regard to the Voss and Lovelock patents. Reconsideration of claim 4 is respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Voss in View of Lovelock and JP 6-333583

Claims 6-8 stand rejected as unpatentable over Voss et al, US Patent 6,106,964 in view of Lovelock, US Patent 5,160,511 as applied to claims 1-3 and 5, and further in view of JP 6-333583 for its teaching of a fuel cell system comprising a compressor downstream of a cathode supply line humidifier. Applicants respectfully traverse this rejection and request reconsideration of the claims.

Again, the additional reference does not teach or suggest the temperature range which the Voss and Lovelock patents also do not suggest. Thus, Applicants submit that the claims are patentable over the combination of references by virtue of the distinction discussed above with regard to the rejection of claims 1-3 and 5 over the Voss and Lovelock patents. Withdrawal of the rejection and reconsideration of the claims are respectfully requested.

Rejection Under 35 U.S.C. § 103(a) over Voss in View of Lovelock,
JP 6-333583, and Bloomfield

Claim 9 stands rejected as unpatentable over Voss et al, US Patent 6,106,964 in view of Lovelock, US Patent 5,160,511 and JP 6-333583 and further in view of the Bloomfield patent. Applicants respectfully traverse this rejection. None of the cited

references teaches a temperature at a water transfer device input for cathode effluent that is greater than and up to about 10°C above the dew point. Accordingly, Applicants respectfully request withdrawal of the rejection and reconsideration of the claim.

Obviousness-Type Double Patenting Rejection

Claims 1-9 stand rejected for obviousness-type double patenting over claims 1-20 of US Patent 6,630,260 in view of the Lovelock patent and in view of JP 6-333583. As argued above, the Lovelock and JP 6-333583 references do not suggest a temperature at a water transfer device input for cathode effluent that is greater than and up to about 10°C above the dew point. Thus, the present claims are not obvious from the claims of the '260 patent in view of Lovelock and the JP reference. Applicants therefore respectfully request withdrawal of the rejection and reconsideration of the claims.


CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: March 6, 2006

By:


Anna M. Budde, Reg. No. 35,085

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600